

## EXHIBIT 1

## Human Gene Therapy Clinical Protocols

1. ADA Deficiency - NIH
2. TNF/TIL/Melanoma - NIH
3. TNF/Cancer - NIH
4. IL-2/Cancer - NIH
5. Liver LDL Receptor/FH - Univ. of Michigan
6. TK/Ovarian Cancer - Univ. of Rochester
7. HLA-B7/Melanoma:1 - Univ. of Michigan
8. CTL/TK/AIDS - Univ. of Washington
9. IL-2/Neuroblastoma - St. Jude
10. TK Producer Cells/Brain Cancer - NIH
  
11. IL-2/Melanoma - Sloan-Kettering
12. IL-2/Renal Cell Cancer - Sloan Kettering
13. HIV gp120/AIDS:2 - Viagene
14. IL-4/Cancer - Univ. of Pittsburgh
15. Antisense Ras/p53/Lung Cancer - M.D. Anderson Hospital
16. CF/Lung/Adenovector - NIH
17. CF/Lung/Adenovector - Univ. of Michigan
18. CF/Nasal Epithelium/Adenovector - Univ. of Iowa
19. TK Producer Cells/Brain Cancer - Iowa Methodist
20. GM-CSF/Renal Cell Cancer - Johns Hopkins
  
21. CF/Lung/Adenovector - Univ. of Cincinnati
22. CF/Lung/Adenovector - Univ. of North Carolina
23. Gamma-Interferon/Melanoma - Duke University
24. MDR/Ovarian Cancer - M.D. Anderson Hospital
25. HLA-B7/Cancer:2 - Univ. of Michigan
26. Glucocerebrosidase/Gaucher - Univ. of Pittsburgh
27. Glucocerebrosidase/Gaucher - NIH
28. HIV-IT(V)/AIDS - Univ. of Southern California
29. Rev-/AIDS - Univ. of Michigan
30. TK Producer Cells/Pediatric Brain Cancer - CHLA
  
31. MDR/Cancer - Columbia University
32. Anti-IGF-1/Cancer - Case Western Reserve
33. IL-2/Cancer - UCLA
34. MDR/Breast Cancer - NIH
35. IL-2/Melanoma - Univ. of Illinois
36. IL-2/Small Cell Lung Cancer - Univ. of Miami
37. TK Producer Cells/Pediatric Brain Tumor - St. Jude
38. Ribozyme/AIDS - UCSD
  
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39. HIV gp120/AIDS:1 - Viagen
  
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40. Factor IX/ Hemophilia B - Fudan Univ., Shanghai (China)
41. IL-2/Cancer - University Hospital, Leiden (Netherlands)
42. ADA Deficiency - San Raffaele Sci. Inst., Milan (Italy)
43. ADA Deficiency - TNO, (The Netherlands + France, England)

Date: 10/1/93

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